



Performance of Pekin Ducks and *Desi* Ducks under Integrated Farming System at Kancheepuram District in Tamilnadu

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ABSTRACT

Ducks play a very important position next to chicken for the small-scale farmers in India because they are a source of income and part time employment for the growers. Ducks easily adapt to various environments and are more resistant to poultry diseases (than chicken), many rural people in the country practice commercial duck farming. However, compared to broiler chickens, broiler duck industry is less popular and its development seems relatively slow because of the low consumption rate of duck meat by consumers and less efficient feed conversion. Keeping these points in mind, Krishi Vigyan Kendra, Kattupakkam conducted an on-farm testing on the performance of Pekin ducks in Integrated farming system (IFS) model. A total number of five farmers with fish farm pond were identified from five different villages. Each farmer was provided with 20 Pekin ducklings, 20 desi ducklings and 20 kg duck mash. It was found that on an average the pekin ducks attained the weight of around 1.780 kg as compared to the desi bird (1.250 kg) at 60d of age. The feed conversion ratio was found to be higher (3.75kg) in local ducks than the Pekin ducks (2.63kg). It was also found that the mortality rate of Pekin ducklings reduced after advising the farmers on scientific duck farming practices. The benefit cost ratio was found to be 1.71 which in turn reveals that duck farming is a profitable venture to the farmers. It was also noticed that the benefit cost ratio for the demo-Pekin ducks (1.71) was higher than the check- desi ducks (1.19).

Key Words: Efficiency, Feed, On-farm testing (OFT), Pekin ducks, Integrated farming.

INTRODUCTION

Integrated farming is a sequential linkage between two or more agri-related farming activities with one farming as major component. The integrated of fish farming with agriculture and animal husbandry is considered as sustainable farming system. Raising ducks over fish ponds fits very well with the fish polyculture system, as the ducks are highly compatible with cultivated fishes.

Fish pond being a semi-closed biological system with several aquatic animals and plants provides an excellent disease-free environment for the ducks. Pond bottom racking and swimming activity by ducks help in aerating the pond water.

Duck dropping contains 0.9 per cent nitrogen and 0.4 per cent phosphorous. Duck dropping act as good organic manure which helps in production of different variety of phytoplankton & zooplankton in pond. About 250 - 300 ducks are enough to fertilize a hectare of water spread. The fish-cum-duck integration system provides meat, eggs in addition to fish. It generates production of additional food and income to the farmer. Approximately 40-50 kg of organic waste is converted into one kg of fish.

The duck cum fish farming practices can utilize the waste from duckery for fish production. Animal wastes and waste feed particles that enter the food web of a pond ecosystem are utilized as a source of

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nutrients required for primary production (Banerjee *et al.*, 2014) reported that the use of cow dung and duck manure for practicing aquaculture is a viable option for natural biodiversity.

In an integrated fish culture, animal wastes and undigested and spilt food particles are directly consumed by the fish and some portion of waste acts as nutrients and organic substrates for many micro-organisms which in turn consumed directly by fish or by invertebrate fish food organisms (Misra *et al.*, 2019). Ducks are habituated to consume juvenile frogs, tadpoles and dragonfly etc. and there by make a safe environment for fish. Duck droppings provide essential nutrients go directly into the pond droppings as good sources of carbon, nitrogen and phosphorus, which in turn stimulate growth of natural food organism. In general, the farmers are using local indigenous variety of ducks for fish-cum-duck integration.

The problems encountered in integrated duck cum fish farming were collected during farm and field visit. Some of the major constraints were lack of awareness on integration in IFS model to enhance income, non availability of Pekin ducklings, marketing problems, irregular out-flow of ducklings, low income due to poor performance of native ducks. Based on this data, an on-farm trial was conducted to compare performance of Pekin ducks and desi ducks in Kancheepuram district.

MATERIALS AND METHODS

Location of study

The present study was conducted at farmer's fields at five locations of district Kancheepuram namely Chinnamangulam, Silavattam, Pudhinathottam, Sogandi and Mudaiyur of various blocks from using about 0.5 ha pond area. The duck sheds were constructed on the dyke of the fish ponds using locally available wood and bamboo. The floor of each house was made of slated bamboo and the space between slates was just enough to facilitate the wasted food and duck dropping to fall directly into the pond water. The duck shed was partitioned

into two to house both breeds of ducks in the same pond area. All the ducklings were vaccinated against duck plaque.

Methodology

A total number of five villages were selected for the study. From each village, one farmer was selected and a total number of 200 Pekin and *desi* ducklings (100 each) were procured from Postgraduate Research Institute in Animal Sciences, Kattupakkam. Duck mash of 100kg was procured from Central Feed Technological Unit, Kattupakkam. A total number of 40 Pekin (20) and *desi*(20) ducklings , 20 kg feed were distributed to each selected farmers for the conduct the study.

One-day-old birds were weighed individually on electronic scales to the nearest 0.1 g, after which they were weighed at 49 days of age on electronic crane scales to the nearest 1 g. Daily gain during the rearing period was calculated from body weight on days 1 and 49. Throughout rearing, a record was made of the weight of feed offered and refused, which was used to calculate average feed consumed per bird. The feed efficiency was calculated using the data on feed consumption and weight gain in terms of feed conversion ratio as suggested by Thiele and Alletru (2017):

Feed conversion ratio (FCR) = Feed intake / Weight Gain

The data on income, marketing weight and feed efficiency were recorded and analysed using simple statistical tools.

RESULTS AND DISCUSSION

It was found from that on an average the pekin ducks attained the 1.780kg weight at 60 d of age as compared to the desi bird (1.250 kg). The finding of better egg production capability of Pekin in the present study was in agreement with Onbaşilar *et al* (2011). The feed conversion ratio was found to be 3.75 in local ducks compared to 2.63 in Pekin ducks. It was also observed that the mortality rate of Pekin ducklings were reduced after advising the

Performance of Pekin Ducks

Table 1. Average Marketing weight, Feed Efficiency and Income from Ducks.

Sr. No.	Farmer	Marketing weight		Feed Efficiency		Income		BCR
		Desi	Pekin	Desi	Pekin	No. of Eggs /month	Income /month (Rs.)	
1	Farmer 1	1.200	1.750	3.83	2.63	750	3750	1.72
2	Farmer 2	1.250	1.800	3.84	2.67	780	3900	1.69
3	Farmer 3	1.300	1.900	3.62	2.47	840	4200	1.82
4	Farmer 4	1.300	1.750	3.69	2.74	810	4050	1.62
5	Farmer 5	1.200	1.700	3.75	2.65	900	4500	1.68
	Average	1.250	1.780	3.75	2.63	816	4080	1.71

farmers on scientific duck farming practices. The benefit cost ratio was found to be 1.71 which in turn reveals that Pekin duck farming is a better profitable venture to the farmers than *desi* ducks.

The data (Table 2) showed that an average amount of Rs.1800/month was earned through *desi* duck eggs sales and Rs.2250/month through Pekin duck eggs sales @ Rs.5/egg. On an average 27 eggs /day was collected from the ducks (Pekin + *desi*). So the egg collection per month was around 816 nos. which in turn fetches him Rs. 4080/month and sold the eggs in the nearby market where there was a great demand for duck eggs (Kumar *et al*, 2012). It was also noticed that the benefit cost ratio for the demo (1.71) was higher than the check (1.19).

CONCLUSION

The performance of Pekin ducks surpass the *desi* ducks with the intervention on balanced nutrition coupled with the disease management. The farmer's income was increased as the marketing weight of the

ducks and the number of eggs was increased. Hence, awareness was created among the duck farmers on duck cum fish culture which in turn increase their income in considerable amount to improve their livelihood status. Favorable cost benefit ratio was self explanatory of economic viability of the demonstration and convinced the farmers for adoption of intervention imparted. The technology suitable for enhancing the productivity of ducks and calls for conduct of such demonstrations under the transfer of technology programme by KVKs.

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Table 2. Economic parameters of Pekin ducks and Desi ducks.

Sr. No.	Parameter	<i>desi</i> ducks	Pekin ducks
1	Marketing weight (kg)	1.250	1.780
2	Feed Efficiency	3.75	2.63
3	Average no. of eggs /day	12	15
4	Income per month (Rs.5/egg)	1800	2250
5	BCR	1.19	1.71

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Received on 18/11/2019

Accepted on 01/12/2019